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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/719,771
Filing Date: 11-21-2003
Appellant(s): ELLISON, RICHARD D.

Edward J. Brooks III (40925)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7-23-2007 appealing from the Office action mailed 6-5-2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,267,322	Smith et al.	11-1993

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION
Claim Rejections - 35 USC § 102

1.The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless -
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
sale in this country, more than one year prior to the date of application for patent in the United States.

2.Claims 1 through 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (US Patent 5,267,322).

3.Regarding Claim 1, Smith discloses an automatic gain control comprising: signal level measurement (i.e., a module to measure power level) (Fig. 3, step 312; column 11, lines 9-23) for a stream of frames representing voice signals for conversion to audible signals (i.e., outgoing voice signal stream) (column 7, lines 58-69; column 8, lines 38-42) in a DSP (Fig. 1C, reference 21); gain value adjuStment (i.e., a gain factor setting module) (Fig. 3, steps 326, 330; column 12, lines 38-63) that sets gain by comparing signal level to thresholds (Fig. 3, steps 326,330); and application of gain (i.e., a gain adjustment module) (Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) by applying the gain value to maintain a preferred desired average output level on the telephone line (i.e., to operate within compliance of a PSTN (column 14, lines 1-3). Further, Smith discloses the measuring and adjustment occurring in a DSP (Fig. 1 C, reference 21; Fig. 3, step 312; column 11, lines 9-23; Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) before output on a transmit frame on the TDM highway to a digital to analog converter on a LIM (Fig. 1A, reference 24) for conversion to an audible signal (column 8, lines 62-65) that is output on a public switched telephone line (Fig. 1A, reference 70; column 5, lines 27-29) that corresponds to the output channel claimed and is in communication with the PSTN (column 1, lines 25-29).

4. Regarding Claim 2, Smith further discloses use of two thresholds (Fig. 3, steps 326, 380; column 12, lines 38-63).

5. Regarding Claim 3, Smith further discloses simultaneous use of signal level values for current and future subframes (Fig. 3, step 312; column 11, lines 9-11). The simultaneous use of signal level values from different times inherently includes storing measured levels. In addition, Smith discloses the use of a program variable representing a gain value (i.e., storing a previously applied gain value) (column 12, lines 41-44).

6.Regarding Claim 4, Smith further discloses applying gain values to maintain a level

between a low threshold an.d a high threshold (column 12, lines 38-63).

7.Regarding Claim 5, Smith further discloses multiplying the gain value to the current ii signal value (column 11, lines 41-44).

8.Regarding Claim 6, Smith further discloses applying (i.e., adding) the gain value to the current signal value (column 11, lines 41-44).

9.Regarding Claim 7, in addition to the elements cited above apropos of Claim 1, Smith further discloses a TDM interface (Fig. 1B, reference 63; column 6, lines 3-7) the corresponds to the switch claimed and assigns serial bit blocks (i.e., receives a voice signal stream) from the TDM interface (i.e., a voice signal source) to one of the APU's that includes the gain control function that corresponds to the gain adjustment module claimed. In addition, Smith further discloses measuring signal level at two future and one current subframe (i.e., a number of segments) (column 11, lines 9-11). Further, Smith discloses outputting stream of frames representing voice signals for conversion to audible Signals (i.e., the voice signal stream is outgoing) (column 8, lines 38-42). Further, Smith discloses the measuring and adjustment occurring in a DSP (Fig. 1C, reference 21; Fig. 3, step 312; column 11, lines 9-23; Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) before output on a transmit frame on the TDM highway to a digital to analog converter on a LIM (Fig. 1A, reference 24) for conversion to an audible signal (column 8, lines 62-65) that is output on a public switched telephone line (Fig. 1A, reference 70; column 5, lines 27-29) that corresponds to the output channel claimed.

10. Regarding Claim 8, Smith further discloses sending a gain adjusted frame as a transmit frame on the TDM highway (i.e., adjusting gain before the signal has entered an output channel) (column 8, lines 62-65).

11. Regarding Claim 9, Smith further discloses simultaneous use of signal level values for current and future subframes (Fig. 3, step 312; column 11, lines 9-11). The simultaneous use of signal level values from different times inherently includes storing measured levels.

12. Regarding Claim 10, Smith further discloses taking the sum of the values of the points in the subframes (column 11, lines 13-16).

13. Regarding Claim 11, Smith further discloses computing the mean of the values of the points in the subframes (column 11, lines 10-12).

14. Regarding Claim 12, Smith further discloses applying gain values to maintain a level below a high threshold (column 12, lines 38-63). In addition, Smith further discloses a table of signal level values and associated gain values, each signal level value corresponding to one of the at least two different high threshold levels claimed (Fig. 6, reference 600; column 12, lines 54-62).

15. Regarding Claim 13, Smith further discloses applying gain values to maintain a level between a low threshold and a high threshold (column 12, lines 38-63).

16. Regarding Claim 14, Smith discloses a gain control system comprising: line interfaces (column 3, line 66 through column 4, line 2) that correspond to the voice signal source claimed and provide digital voice data (i.e., produces a voice signal stream) and are coupled to the public switched network (column 5, lines 27-29); Smith further discloses a voice messaging system (Fig. 1A, reference 1; column 5, lines 5-7) that corresponds to the media platform claimed and is coupled to the public switched network (column 5, lines 27-29) and the line interfaces (column 3, line 66 through column 4, line 2) that correspond to the voice signal source claimed. Smith further discloses: a TDM interface (Fig. 1B, reference 63; column 6, lines 3-7) the corresponds to the switch claimed and assigns serial bit blocks (i.e., receives a voice signal stream) from the TDM interface (i.e., a voice signal source); an automatic gain control (Fig. 2A, reference 110; column 5, lines 5-7) that corresponds to the power level adjusting means claimed to maintain a preferred desired average output level on the telephone line (i.e., to operate within compliance of a PSTN (column 14, lines 1-3); and line interface modules (Fig. 1A, reference 24,26; column 5, lines 27-39) that correspond to the output channel claimed. Further, Smith discloses outputting stream of frames representing voice signals for conversion to audible signals (i.e., the voice signal stream is outgoing) (column 8, lines 38-42). Further, Smith discloses the measuring and adjustment occurring in a DSP (Fig. 1C, reference 21; Fig. 3, step 312; column 11, lines 9-23; Fig. 3, steps 328,332, 334, 336; column 12, lines 38-63) before output on a transmit frame on the TDM highway to a digital to analog converter on a LIM (Fig. 1A, reference 24) for conversion to an audible signal (column 8, lines 62-65) that is output on a public switched telephone line (Fig. 1 A, reference 70; column 5, lines 27-29) that corresponds to the output channel claimed.

17. Regarding Claim 15, Smith further discloses the gain control implemented in assembly code software on a DSP (i.e., having a set of computer executable instructions) (column 6, lines 35-37).

18. Regarding Claim 16, Smith further discloses signal level measurement (i.e., measurement module) (Fig. 3, step 312; column 11, lines 9-23); gain value adjustment (i.e., a gain factor setting module) (Fig. 3, steps 326, 330; column 12, lines 38-63) that sets gain by comparing signal level to thresholds (Fig. 3, steps 326,330); and application of gain (i.e., a gain adjustment module) (Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) by applying the gain value. 19. Regarding Claim 17, Smith further discloses the signal level measurement that corresponds to the measurement module claimed measuring signal (i.e., power) level (Fig. 3, step 312; column 11, lines 9-23) for a stream of frames representing voice signals (i.e., voice signal stream) (column 7, lines 58-69.

20. Regarding Claim 18, Smith further discloses the gain value adjustment that corresponds
to the gain factor setting module claimed (Fig. 3, steps 326, 330; column 12, lines 38-63) sets gain by comparing signal level to thresholds (i.e., based on measurement information from the measurement module (Fig. 3, steps 326,330).

21. Regarding Claim 19, Smith further discloses the application of gain that corresponds to the gain adjustment module claimed (Fig. 3, steps 328,332, 334, 336; column 12, lines 38-63) applying the gain value based on the gain value adjustment that corresponds to the gain factor setting module claimed (Fig. 3, steps 326, 330; column 12, lines 38-63).

22. Regarding Claim 20, Smith further discloses the gain control implemented in assembly code software on a DSP (i.e., including program instructions executed on a processor) (column 6, lines 35-37) within the voice messaging system that corresponds to the media platform claimed (Fig. 1C, reference 72; column 7, lines 61-64).

23. Regarding Claim 21, Smith discloses an automatic gain control (i.e., method of adjusting power level) comprising: receiving a stream of frames representing voice signals (i.e., voice signal stream) (column 7, lines 58-69); signal level measurement (i.e., measuring a power level) (Fig. 3, step 312; column 11, lines 9-23) for current and future subframes (i.e., at a number of points in time) (Fig. 3, step 312; column 11, lines 9-11); comparing signal level to thresholds (Fig. 3, steps 326,330); and application of gain (i.e., adjusting power level) (Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) by applying a gain value based on the comparison (Fig. 3, steps 326, 330; column 12, lines 38-63) to maintain a preferred desired average output level on the telephone line (i.e., to operate within compliance ofa PSTN (column 14, lines 1-3). Further, Smith discloses outputting stream of frames representing voice signals for conversion to audible signals (i.e., the voice signal stream is outgoing) (column 8, lines 38-42). Further, Smith discloses the measuring and adjustment occurring in a DSP (Fig. 1 C, reference 21; Fig. 3, step 312; column 11, lines 9-23; Fig. 3, steps 328, 332,334, 336; column 12, lines 38-63) before output on a transmit frame on the TDM highway to a digital to analog converter on a LIM (Fig. 1A, reference 24) for conversion to an audible signal (column 8, lines 62-65) that is output on a public switched telephone line (Fig. 1A, reference 70; column 5, lines 27-29) that corresponds to the output channel claimed.

24. Regarding Claim 22, Smith further discloses use of two thresholds (Fig. 3, steps 326,
380; column 12, lines 38-63).

25. Regarding Claim 23, Smith further discloses adjusting power level (Fig. 3, Steps 328, 332, 334, 336; column 12, lines 38-63) by applying a gain value based on the comparison (Fig. 3,steps 326, 330; column 12, lines 38-63).

26. Regarding Claim 24, Smith further discloses signal level measurement (i.e., measuring a power level) (Fig. 3, step 312; column 11, lines 9-23) for current and future subframes (i.e.,segments) (Fig. 3, step 312; column 11, lines 9-11).

27. Regarding Claim 25, Smith further discloses reducing gain only if signal level measurement (i.e., measuring a power level) (Fig. 3, step 312; column 11, lines 9-23) for all three subframes (i.e., segments) (Fig. 3, step 312; column 11, lines 9-11) are below a threshold. As such, Smith discloses comparing the level of each segment with the threshold.

28. Regarding Claim 26, Smith further discloses using the mean (i.e., average) of the values of the points in the subframes (column 11, lines 10-12).

29. Regarding Claim 27, in addition to the elements cited above apropos of Claim 21, Smith further discloses maintaining instructions for the method on disk drives (i.e., a computer readable medium) (column 7, lines 36-39).

30. Regarding Claim 28, Smith further discloses a table of signal level values and associated gain values (i.e., adjustingpower level in differing increments based on proximity of measured power to threshold) (Fig. 6, reference 600; column 12, lines 54-62).

31. Regarding Claim 29, Smith further discloses using the mean (i.e., average) of the values of the points in the subframes (column 11, lines 10-12).

32. Regarding Claim 30, Smith further discloses use of signal level values for current and future subframes (i.e., replacement of oldest value with new value) (Fig. 3, step 312; column 11, lines 9-11).

33. Regarding Claim 31, Smith further discloses interface with a T1 channel (Fig. 1A, reference 26; column 5, lines 33-39).

34. Regarding Claim 32, Smith further discloses the voice data stream stored in memory (Fig. 2A, reference 100; column 12, lines 38-42).

35. Regarding Claim 33, Smith further discloses a text-to-speech application (column 7, lines 21-25).

36. Regarding Claim 34, Smith discloses an automatic gain control (i.e., method of adjusting power level) comprising: receiving a stream of frames representing voice signals (i.e., voice signal stream) (column 7, lines 58-69); signal level measurement (i.e., measuring a power level) (Fig. 3, step 312; column 11, lines 9-23) for current and future subframes (i.e., at a number of points in time) (Fig. 3, step 312; column 1 I, lines 9-11); comparing signal level to thresholds (Fig. 3, steps 326,330); and application of

gain (i.e., adjusting power level) (Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) by applying a gain value based on the comparison (Fig. 3, steps 326, 330; column 12, lines 38-63) over a period of time (i.e., gradually) (column 12, lines 45-49) to maintain a preferred desired average output level on the telephone line (i.e., to operate within compliance of a PSTN (column 14, lines 1-3). Further, Smith discloses outputting stream of frames representing voice signals for conversion to audible signals (i.e., the voice signal stream is outgoing) (column 8, lines 38-42). Further, Smith discloses the measuring and adjustment occurring in a DSP (Fig. 1C, reference 21; Fig. 3, step 312; column 11, lines 9-23; Fig. 3, steps 328, 332, 334, 336; column 12, lines 38-63) before output on a transmit frame on the TDM highway to a digital to analog converter on a LIM (Fig. 1 A, reference 24) for conversion to an audible signal (column 8, lines 62-65) that is output on a public switched telephone line (Fig. 1A, reference 70; column 5, lines 27-29) that corresponds to the output channel claimed.

37. Regarding Claim 35, Smith further discloses a table of signal level values and associated gain values (i.e., changing an amount of adjustment based on proximity of measured power to target) (Fig. 6, reference 600; column 12, lines 54-62).

38. Regarding Claim 36, Smith further discloses a table of at least four signal level values and associated gain values (i.e., comparing power levels to four thresholds) (Fig. 6, reference 600; column 12, lines 54-62).
39. Regarding Claim 37, Smith further discloses maintaining a target output level (column 14, lines 1-3). As such, Smith discloses a larger adjustment for values further from the target.

(10) Response to Argument

As per appellant's argument that Smith does not disclose an outgoing path to a PSTN with outgoing signals being processed by an AGC system to conform to PSTN standards the examiner disagrees. Examiner notes Smith's background that discloses that AGC systems are used with the PSTN in order to control the signal levels (Col 1 lines 25-40). The PSTN is a known interface that is defined by known standards for the well known purpose of bidirectional communication via telephones. Smith then discloses LIC's (line interface controllers) that process voice signals (Col 5 lines 40-45) via a TDM interface (Col 6 lines 5-10). Voice signals in a PSTN are bidirectional (people make

telephones calls to have a two way conversations). Smith further discloses that each LIC has a DSP that controls the signal levels of the voice data on the TDM highway (bus) (Col 6 lines 60-65). Smith's gain controlling DSP operate on signals that are received from calling telephones that may be processed and then sent to a digital to analog converter to be output (Col 8 lines 35-45). The DSP on each LIC is used to operate on data signals for each telephone interface element (Col 5 lines 25-35). Smith further notes that the AGC can be used during a real time telephone call (Col 9 lines 1-10) to set a desired output level to tip-ring telephone lines (Col 14 lines 1-5).

The Examiner contends that trunk 70 to the central office is a PSTN interface ('output channel' in appellant's claims) and that the AGC disclosed by smith will operate on all signals on the TDM during a realtime telephone call, which would include incoming voice signals and outgoing voice signals. Smith never states that the AGC only acts on incoming signals.

The Examiner offers another viewpoint for consideration. Even if it could be ascertained that Smith discloses gain control in one direction "out" to a network, the Smitch reference could still be read on appellant's claims. In that case the examiner would read the tip/ring interfaces to each telephone as 'output channels', which are used to send signals to the telephones, which are part of the PSTN. Appellant's Specification gives no limitation or guidance as to what defines the boundaries of the PSTN, other than to say it conforms with known standards. The examiner reads the PSTN as defined by any devices (such as telephones), that are connected to it. Since a well-known PSTN is bidirectional, any path may be considered an 'input channel' or an 'output channel'

depending on which end is receiving the data at that moment. Again, appellant's specification gives no guidance or limitations as to what limits the PSTN. The examiner contends that any devices that are made specifically to operate with the PSTN (such as that of Smith) will conform to the known and recognized standards at that time (including bidirectional communication) since it was designed to work with the PSTN.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Examiner Alexander Jamal

Conferees:

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